

IN THE CLAIMS:

Please amend claims 1, 25, and 27. No claim is cancelled or added herein.

1. (Currently amended) An optical system within a computer mouse for illuminating a target surface, the optical system comprising:
a light source, positioned at a first angle relative to a circuit board, the light source configured for emitting light to illuminate evenly an area on the target surface, the first angle being non-perpendicular to the circuit board; and
a lens having an entrance surface and an exit surface, the entrance surface positioned to gather the light from the light source and the exit surface directing the light onto the target surface, the entrance surface structured with a curvature to refractively shape the gathered light and angled at a second angle different than the first angle to refract the gathered light towards the exit surface the exit surface structured with a curvature to further refractively shape the gathered light and angled at a third angle different from the second angle to refract the gathered light to illuminate the target surface, the lens further configured to traverse light between the entrance surface and exit surface without total internal reflection,
wherein an optical axis of the entrance surface is not parallel to an optical axis of the exit surface.
2. (Canceled)
3. (Original) The system of claim 1, wherein the lens directs the light onto the target surface using a Fresnel lens.

4. (Original) The system of claim 1, wherein the lens directs the light onto the target surface using a diffractive optical element.
5. (Original) The system of claim 1, wherein the angle between the light source and the circuit board is approximately an angle between 10 degrees and 45 degrees.
6. (Original) The system of claim 1, wherein the light emitted from the light source flows through an opening in the circuit board.
7. (Original) The system of claim 1, wherein the light source protrudes through the circuit board.
8. (Original) The system of claim 1, wherein the lens is wedge-shaped.
9. (Previously presented) The system of claim 1, the curvature of the entrance surface further comprises a toroidal surface for gathering light emitted from the light source.
10. (Previously Presented) The system of claim 1, wherein the curvature of the entrance surface comprises an aspherical surface.
11. (Previously Presented) The system of claim 1, wherein the curvature of the exit surface further comprises an aspherical surface for spreading light emitted from the light source onto the target surface.
12. (Previously presented) The system of claim 11, wherein the curvature of the exit surface ~~is~~ comprises a toroidal surface.
13. (Original) The system of claim 1, wherein the system is for use in an optical mouse.
14. (Original) The system of claim 1, wherein the system is for use in an optical trackball.
15. (Original) The system of claim 1, wherein the light source is a light emitting diode.
16. (Original) The system of claim 1, wherein the lens is made from glass.
17. (Original) The system of claim 1, wherein the lens is made from an optical plastic.

18. – 24. (Canceled)

25. (Currently amended) A method for illuminating an area of a target surface using an illumination system in a computer pointing device, the method comprising:
emitting light from a light source positioned at a first angle relative to a circuit board,
the first angle being non-perpendicular to the circuit board;
shaping refractively the emitted light gathered at an entrance surface of a lens, the
entrance surface having a curvature for refracting the emitted light; and
refracting the gathered light at a third angle through an exit surface of the lens, the
exit surface having a curvature for further shaping refractively the gathered
light, to illuminate the area of the target surface with the light refracted from
the exit surface, the light traversing between the entrance surface and exit
surface without total internal reflection,
wherein an optical axis of the entrance surface is not parallel to an optical axis of the
exit surface.

26. (Previously presented) The method of claim 25, wherein the first angle relative to the
surface is approximately between 10 degrees and 45 degrees.

27. (Currently amended) An illumination system in a computer pointing device for
illuminating an area of a surface, the illumination system comprising:
a means for emitting light, the means for emitting light structured at a first angle
relative to a printed circuit board, the first angle being non-perpendicular to
the circuit board; and
a means for refractively shaping the emitted light gathered from the light source at an
entrance surface of a directing means, the entrance surface having a curvature

for refracting the gathered light,
the means for refractively shaping the gathered light including a third angle through
an exit surface, the exit surface having a curvature for refractively shaping
further the gathered light, to illuminate the area of the target surface with the
light refracted from the exit surface, the means for refractively shaping further
configured to traverse light between the entrance surface and exit surface
without total internal reflection.

28. (Previously presented) The system of claim 27, wherein the means for emitting light is a light emitting diode.
29. (Previously presented) The system of claim 27, wherein the means for emitting light is tilted at an angle of approximately 10 degrees to 45 degrees.
30. (Previously presented) The system of claim 27, wherein the means for gathering the emitted light is a lens positioned to gather the light from the light emitting means.
31. (Previously presented) The system of claim 27, wherein the computer pointing device comprises an optical mouse.
32. – 58. (Cancelled)